REMARKS

In the Office action dated August 10, 2005, claims 1-33 were pending, with claims 18-33 having been withdrawn from consideration, claims 1-6, 8, 9, and 13 having been rejected, and claims 7, 10-12, and 14-17 having been objected to. As of this Reply, claims 1-17 and 34-44 are pending, with claim 1 having been amended, claims 18-33 having been canceled, and claims 34-44 having been added. Further examination and reconsideration respectfully are requested.

Examiner's Acceptance of the Drawings

The examiner's review and acceptance of the drawings filed on March 21, 2005 is noted with appreciation.

Explanation of the Amendment to Claim 1

Claim 1 is amended to correct for minor errors in antecedent basis by the deletion of "optical" and the deletion of "the" in favor of –a–. The scope of claim 1 is not changed in any way by this amendment. No new matter is added.

Claim 1 has further been amended by the addition of the phrase "that increase the spacing of the individual optical channels" to the "diffraction unit" element, for reasons explained below.

Claims 18-33 were previously withdrawn as being of a non-elected group, and have been canceled without prejudice to their being reintroduced in a continuing application.

Rejection of Claim 1 Under 35 USC § 103

Claim 1 was rejected under 35 USC § 103(a) are being unpatentable over U.S. Patent No. 5,805,759 ("Fukushima") in view of U.S. Patent No. 5,917,625 ("Ogusu").

Claim 1 is amended to further include the limitation that the at least first and second transmissive diffraction elements increase the spacing of the individual optical channels. This limitation is supported by the specification (see, for instance, FIG. 2 of

the present application), and is not taught or suggested by Fukushima or Ogusu, taken alone or in combination.

Three criteria must be met to establish a prima facie case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference, or combination of references, must teach or suggest all the claim limitations. MPEP § 2142. Claim 1 as amended is patentable because the prior art fails to disclose all the claim limitations, and there would be no motivation to combine the references as proposed by the Examiner.

Regarding the Fukushima reference, FIG. 22 shows that a multi-wavelength light emerges from fiber 16, is collimated by lens 28, and reflects off gratings 20 and 22. Grating 20 increases the separation between wavelengths, so that the separation between wavelengths increases as the light propagates away from the grating 20. However, grating 22 is used in a reverse manner to that of grating 20, in that the light reflecting from grating 22 has a constant separation between wavelengths; grating 22 effectively un-does the dispersive effects of grating 20. The different wavelength components are all parallel after reflection off grating 22, and the spacing between them does not change between grating 22 and elements 124 or 52. Fukushima cannot be considered to teach amended claim 1 because grating 22 does not increase the spacing of the individual channels, as recited by amended claim 1.

In fact, the device of FIG. 22 in Fukushima would not work correctly if grating 22 were to increase the spacing of the individual channels, in that the beams reflected from elements 124 or 52 would not retrace their paths properly through the pair of gratings and would not properly couple into fiber 18'. Therefore, Fukushima does not suggest the limitation that the at least first and second transmissive diffraction elements increase the spacing of the individual optical channels, as recited by amended claim 1.

Regarding the Ogusu reference, this reference does not teach or suggest having a second diffraction element at all, let alone having a first and second transmissive diffraction elements increase the spacing of the individual optical channels. In many of the embodiments of Ogusu, a diffraction grating is struck twice by the same beam,

usually after a reflection off a mirror. The dispersion that would be achieved by having a single beam strike two distinct diffraction gratings is provided by twice striking a single diffraction grating. In this manner, Ogusu achieves the performance of two gratings with a single grating. Accordingly, Ogusu does not teach or disclose having a second diffraction element at all, and clearly teaches away from the limitation that the at least first and second transmissive diffraction elements increase the spacing of the individual optical channels, as recited by amended claim 1.

Since increasing the spacing of the individual optical channels as recited by amended claim 1 is lacking from both Fukushima and Ogusu, the combination of these references fails to teach or suggest the claimed invention as set forth in amended claim 1.

Dependent claims 2-6, 8, 9 and 13, which are dependent from amended independent claim 1, were also rejected under 35 U.S.C. §103(a) as being unpatentable over Fukushima in view of Ogusu. While Applicants do not acquiesce with the particular rejections to these dependent claims, these rejections are moot in view of the remarks made in connection with amended independent claim 1. These dependent claims include all of the limitations of the base claim and any intervening claims, and may recite additional features which further distinguish these claims from the cited references. Accordingly, these claims are not rendered obvious by Fukushima in view of Ogusu.

Rejection of Claims 4, 6 and 13
Under 35 USC § 103

Dependent claims 4, 6 and 13 were rejected under 35 USC § 103(a) are being unpatentable over U.S. Patent No. 5,805,759 ("Fukushima") in view of U.S. Patent No. 5,917,625 ("Ogusu"). These claims have been rewritten in independent form as claims 34, 35 and 40 respectively, incorporating the limitations of the parent claim and all intervening claims but not including any new limitations. The rejection is traversed.

With respect to claim 34 (previously claim 4), the argument presented by the Examiner as understood by the Applicant states that one of ordinary skill in the art could use the configuration of Fukushima's FIG. 22 with two lenses if one were to unfold the optical system. A similarly unfolded system is shown in FIG. 12, with two lenses (28 and

30). In such an unfolded system, the two lenses are on either side of the diffraction gratings, disposed adjacent to the input and output fibers. As such, neither lens is disposed between the gratings and any reflectors in the system. Accordingly, the references do not teach "a second light focusing unit disposed on the wavelength-specific optical paths between the diffraction unit and the plurality of reflectors", as recited by claim 4. The rejection as to claim 34 should be withdrawn.

With respect to claim 35 (previously claim 6), the element cited by the Examiner in Fukushima (62 in FIG. 12) is not a "polarization separation unit", as recited in the claim, but a "half-wave plate" (column 12, line 50). Fukushima more generally describes the half-wave plate 62 as an "optical rotating element", which can rotate the polarization of a beam but cannot separate light "into first and second components having mutually orthogonal polarizations", as recited by claim 35. Therefore, not all the elements of claim 35 are suggested or taught by Fukushima, and claim 35 is not obvious in view of Fukushima. The rejection as to claim 34 should be withdrawn.

With respect to claim 40 (previously claim 13), the claim includes a "dynamically adjustable attenuator." In such an attenuator, the reflectivity of each reflector may be controlled individually. Support for dynamically adjustable attenuator may be found in, for example, paragraph 168 of the specification, as follows: "Instead of having a static attenuating reflector array, the device 3900 includes a dynamic attenuating reflector array 3930 that includes reflectors 3932 having individually variable attenuation under control of a control unit 3934. Thus, the control unit may vary the reflectivity of one or more of the reflectors 3934 according to changing operating conditions in the fiber optics communication system, and thus dynamically alter the spatial reflectivity profile of the attenuating reflector array 3930." In other words, the reflectivity of each reflector may be controlled individually. In contrast, the element 6 in Fukushima is a single attenuator having a non-adjustable attenuation. Fukushima uses an actuator to move the single attenuator to affect the particular wavelengths, but does not "vary the reflectivity of one or more of the reflectors", as described in the specification of the application. Accordingly, the reference does not disclose a "dynamically adjustable attenuator", as recited in claim 40. Since not all the elements of claim 40 are suggested or taught by the references, therefore claim 40 is not obvious in view of the references. The rejection as to claim 40 should be withdrawn.

Allowable Subject Matter

Claims 7, 10-12 and 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Independent claims 7, 10 and 14 have been rewritten in independent form as new claims 36, 37, and 41 respectively, incorporating the limitations of the parent claim and all intervening claims but not including any new limitations. Claims 11 and 12 which depend from claim 10 have been rewritten as new claims 38 and 39 dependent from claim 37, and claims 15-17 which depend from claim 14 have been rewritten as new claims 42-44 dependent from claim 41. Since applicants have complied with the examiner's requirements for allowability, these claims are now in condition for allowance.

Conclusion

In view of the foregoing amendments, it is believed that the application is now in condition for allowance. Applicants respectfully request favorable reconsideration and the timely issuance of a Notice of Allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact the undersigned at (952) 253-4135.

Respectfully submitted,

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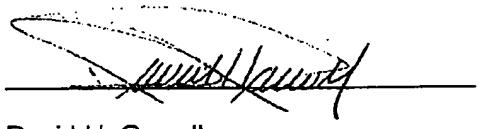
Date: November 10, 2005 By: 

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